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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/646,848 | 08/21/2003 | Andrew J. Hazelton | PA0525-US/11269.58 | 1443 |

7590 03/13/2007
The Law Office of Steven G. Roeder
5560 Chelsea Avenue
La Jolla, CA 92037

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| EXAMINER |
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PRESTON, ERIK D

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| ART UNIT | PAPER NUMBER |
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2834

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 03/13/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/646,848

Applicant(s)

HAZELTON, ANDREW J.

Examiner

Erik D. Preston

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,9-32 and 34-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-5,9-12,14-19 and 34-42 is/are allowed.
- 6) ☒ Claim(s) 13,20-22,27-32,43,44 and 47-60 is/are rejected.
- 7) ☒ Claim(s) 23-26,45,46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/24/2006 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20-22, 43, 44 & 47-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Carl, Jr. (US 4126798, previously cited).

With respect to claims 20, 21 & 43, Carr teaches a mover including a magnet component (Fig. 2, #30) and a conductor component (Fig. 2, #25), said mover also including a first passageway (indicated generally at Fig. 2, #27 & 70) and a sealed second passageway (located inside of Figs. 2 & 5, #26) in the conductor component of the mover, the second passageway being filled with a second fluid (air, Col. 5, Lines 46-59) that is not actively circulated; wherein the passageways are positioned within the

conductor component (As seen in Figs. 2 & 5; Col. 5, Lines 2-14); and a fluid source that circulates a first fluid through the first passageway.

With respect to claims 22 & 44, Carr teaches the mover of claims 20 & 43 further comprising the step of transferring heat from a conductor array of the conductor component with a heat transfer (Fig. 2, #27) that is in direct thermal communication with the conductor component and transfers heat from the conductor component.

With respect to claim 47, Carr teaches the mover of claim 44 wherein the heat transferer includes a heat pipe (the apparatus of Carr will act as a heat pipe).

With respect to claim 48, Carr teaches the mover of claim 44 wherein the heat transferer includes a thermally conductive structure (all matter is thermally conductive).

With respect to claim 49, Carr teaches a method for making a mover combination, the method comprising the steps of: providing a mover having a magnet component and a conductor component and controlling the temperature of the mover with the method of claim 43.

Claims 56-60 are rejected under 35 U.S.C. 102(b) as being anticipated by Dombrovski et al. (US 6313556, previously cited).

With respect to claim 56, Dombrovski teaches a mover including an outer surface (as seen in Fig. 1), a magnet component (Fig. 1, #52) and a conductor component (Fig. 1, #72), wherein the conductor component has a first passageway (Fig. 1, #76 & 78), and a second passageway (Fig. 1, #44) that is at least partially encircled by the first passageway; and a circulation system (Fig. 1, #16 & 20) comprising a fluid source that

directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the second fluid so that the second fluid is approximately boiling at the inlet (the cryogenic fluid used in this system would inherently be boiling at least during the initial operation of the device).

With respect to claim 57, Dombrovski teaches the motor of claim 56, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature (Col. 5, Lines 30-49; the stator cooling means will cool the stator support (Fig. 1, #74) which forms an outer surface of the mover).

With respect to claims 58-60, Dombrovski teaches the motor of claim 56 wherein the second fluid is approximately boiling.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 28-32 & 51-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr, Jr. et al. (US 4126798, previously cited). Carr teaches the mover of claims 20 & 43, but it does not specifically teach said mover being used in an isolation system, stage assembly, or an exposure apparatus for producing semiconductor wafers.

However, isolation systems, stage assemblies, and exposure apparatuses for producing

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semiconductor wafers using rotary motors were well known at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the mover of Dombrovski in isolation systems, stage assemblies, and exposure apparatuses for producing semiconductor wafers because superconducting motors are more energy efficient than conventional motors.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dombrovski et al. (US 6313556, previously cited) in view of Fukaya et al. (US 4764696). Dombrovski teaches a mover comprising: a mover including an outer surface (as seen in Fig. 1), the mover defining a first passageway (Fig. 1, #76 & 78) and a second passageway (Fig. 1, #44) including an inlet, the first passageway encircling a portion of the second passageway (as seen in Fig. 1), and a circulation system (Fig. 1, #16 & 20) comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature (Col. 5, Lines 30-49); the stator cooling means will cool the stator support (Fig. 1, #74) which forms an outer surface of the mover), and wherein the second fluid is approximately boiling at the inlet (the cryogenic fluid used in this system would inherently be boiling at least during the initial operation of the device), but it does not explicitly teach the mover being a linear motor. However, Fukaya teaches a linear motor (Fig. 2) that uses rotary motion between a stator (Fig. 2, #2) and a rotor (Fig. 2, #11) for linear actuation purposes. It would have been obvious to one of ordinary skill in

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the art at the time of the invention to modify the shaft of Dombrovski in view of the threaded shaft and rotor as taught by Fukaya because it provides a means for using a rotary motor to drive a shaft in the axial direction (Fukaya, Col. 1, Lines 4-6 & Dombrovski, Col. 9, Lines 14-17).

Claims 27 & 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr, Jr. et al. (US 4126798, previously cited) in view of Dombrovski et al. (US 6313556, previously cited). Carr teaches the mover of claims 20 & 49, wherein the mover is positioned in a room that has a room temperature, but it does not explicitly teach the temperature of the first fluid in the first passageway. However, Dombrovski teaches that a temperature of a first fluid in a first passageway is approximately equal to the room temperature (Col. 5, Lines 30-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the first fluid of Carr in view of the first fluid cooling means as taught by Dombrovski because it provides an equivalent and equally well-known means for cooling the stator of a dynamoelectric machine (Dombrovski, Col. 5, Lines 30-49).

Allowable Subject Matter

The indicated allowability of claim 13 is withdrawn in view of the newly discovered reference(s) to Fukaya. Rejections based on the newly cited reference(s) are above.

Claims 1,3-5,9-12,14-19 & 34-42 are allowed.

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Claims 23-26,45 & 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 1 & 37, while prior art does teach some of the material included in the claims, it does not teach the combination wherein both the first and second passageways are positioned within the conductor component.

With respect to claim 12, while prior art does teach some of the material included in the claim, it does not teach the combination comprising a pair of spaced apart magnet arrays and a conductor component that includes a conductor array positioned between the magnet arrays.

With respect to claim 14, while prior art does teach some of the material included in the claim, it does not teach the combination comprising a voice coil motor.

With respect to claims 23 & 45, while prior art does teach some of the material included in the claims, it does not teach the combination comprising a third passageway in the mover for transferring heat from the conductor component.

Claims 3-5,9-11,15-19,24-26,34-36,38-42 & 46 are dependent upon the above claims.

Response to Arguments

Applicant's arguments filed 11/24/2006 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the sealed second passageway encircles the conductor component) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion



The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5271248

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is (571)272-8393. The examiner can normally be reached on Monday through Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


02/15/2007
BURTON S. MULLINS
PRIMARY EXAMINER